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Follow-up to the Fourth World Conference on Women and to the twenty-third special session of the General Assembly, entitled "Women 2000: gender equality, development and peace for the twenty-first century": implementation of strategic objectives and action in critical areas of concern and further actions and initiatives

Statement submitted by the Third World Academy of Sciences, a non-governmental organization in consultative status with the Economic and Social Council

The Secretary-General has received the following statement, which is being circulated in accordance with paragraphs 36 and 37 of Economic and Social Council resolution 1996/31.

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Statement*

1. In collaboration with the Organization for Women in Science for the Developing World (OWSDW), formerly the Third World Organization for Women in Science (TWOWS), Third World Academy of Sciences (TWAS) calls for policy and programmes to address the current global situation which sees countries deprived of the contributions that women can make to science, technology and innovation for development. While women make up 40 per cent of the workforce overall, they are represented in most scientific and technological areas of activity at much lower rates.[1] To reduce the divide between developed and developing countries, to ensure that science, technology and innovation benefit both women and men, and to increase economic growth and sustainable development, all countries need to increase the representation and creativity of women in science and technology.

2. Responsible for 60-90 per cent of food production and processing in the developing world, women and girls are also collectors of household fuel and water, and carers of the sick and elderly. With lower access to resources such as credit, education, land and information, women's agriculture and livelihood activities are underserved and under-supported. At the same time, countries are facing challenges of environmental stress, health and well-being, energy and water availability, food security, climate change, conflict and many others. Women and men experience these in different ways and use different strategies to address them.

3. Science and technology have much to offer in addressing these challenges. The Millennium Development Goals (MDGs), target a range of goals which can only be achieved if science, technology and innovation are utilized in the development of products and processes. The goals relating to food security, poverty reduction, maternal and child health and HIV/AIDS in particular are only achievable with science and technology strategies which take into account the situations, needs and concerns of women and men. Additionally, ensuring that gender equality and the empowerment of women are central to the development and implementation of successful science and technology strategies will contribute to achieving the targets for all the Goals.

4. At the same time, there is a need to encourage the greater participation of women in science and technology so that countries can benefit from the increased diversity and creativity this will bring. Governments are increasingly recognizing that science and technology programmes that include a significant role for women can have a strong impact on economic growth. To achieve this, we need science and technology for women and women's needs; we also need women in science and technology.

5. In its review of key issues relating to women's representation in science and technology, the TWAS Taskforce on Gender, Science and Technology for the Developing World summarized the problems facing women in science and technology in the developing world:

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* Issued without formal editing.

[1] Although in many regions the participation of women in the bio and life sciences has increased and is at par with men, participation in other sectors of science, engineering and technology remains low, generally below 30 per cent.

- Underrepresentation in scientific decision-making and policymaking bodies in science, technology and engineering.
- "Glass-ceiling" phenomena: women tend to be blocked from advancing to the highest levels.
- Tendency of girls to take bio sciences and education, seen as traditionally "appropriate" areas for females.
- Underrepresentation in basic sciences such as mathematics and physics.
- Gender bias in textbooks, scientific vocabulary and the scientific literature.
- A culture of science that was defined by men to fit the male life situation.
- A perception that science and technology fields are a masculine domain.
- Discrimination, implicit bias against and barriers to women's participation in science and technology.
- Poor science education at the primary and secondary levels.
- Occupational segregation, both vertical (by level of advancement), and horizontal (by sector).

6. Challenges concerning the use of science and technology to support women's development activities include development of simple and low-cost technologies; recognition of women's local and innovative knowledge; refining and improving their production; and support of sustainable livelihoods.

Recommendations

7. *In addressing these points of attrition, partnerships need to be developed with a range of stakeholders*:

- communities and families to support their understanding of the importance of educating both girls and boys in science and technology.
- educationalists to promote understanding of gendered trends in learning, teacher-student interaction and curricula development.
- universities and research institutes.
- the private sector.
- science and technology decision-making bodies.
- small-scale food producers and enterprises to provide support systems and access to technology and resources.
- extension agencies, researchers, civil society and the private sector to develop partnerships for innovative technology development.

8. *Strategies for action should*:

- Ensure that family and domestic obligations don't prohibit women from participating fully in science and technology systems.
- Recognize that women's career patterns tend to be characterized by breaks and re-entries.

- Address gendered misconceptions and stereotypes of faculty and students.
- Recognize the need to support female participation in science education at all levels.
- Help women scientists to develop professional and personal career-building strategies.
- Address social preconceptions and messages about the abilities and obligations of women and girls.
- Support women scientists to work with women and men at the grass roots in agriculture, health, natural resources management and livelihoods development.
- Implement public-private partnerships to support livelihoods and small and medium enterprises based on science and technology or benefiting from science and technology support.

Specific recommendations

9. Actions for Governments development agencies, educational institutions and the private sector:

- The use of science and technology is aided by high literacy and education levels. Governments, development agencies and educational institutions should encourage and enable women and girls in science and technology education at every level to support their role as users and innovators of technologies as well as researchers, scientists and technologists.
- Target and support the education and careers of girls and women in science at all levels, through:
    - Scholarship support for women at bachelor's and PhD and post-doc levels.
    - Extracurricular and community activities to promote interest in science and technology of girls and boys.
    - Universities, government and the private sector should provide support for childcare, either in the form of financial subsidies or on-site day-care facilities.
    - Governments should support South-South and North-South research exchanges and lectureship programmes between women scientists.
    - Grants and fellowships to support women scientists in re-entry, reintegration, re-training and continuing their research while taking family leave.
    - Provide professional support, advancement and leadership programmes for women scientists, including support for mentoring programmes.
    - Ensure the safety and security of women and girls who travel for educational or field research purposes.
- Support science and technology-based and science and technology-supported enterprises for women, through:

- Entrepreneurial training and support for women scientists and technologists including access to capital, advice, business management resources, etc.
- Political and institutional structures as well as political will to support appropriate innovation systems and women's enterprises, including access to business and technology advice, government services, credit, day-care and other complementary services.
- Provide resources for women's science and technology-based enterprises at small, medium and large levels; and science and technology support for women's non-technology-based enterprises.

- Establish or work with existing national level committees and working groups to understand the situation of women in national science, technology and innovation and to develop policy and programming to encourage increased participation, on the model of the South Africa SET4Women initiative (science, engineering and technology) and the India Women in Science Taskforce.
- Collect systematic and longitudinal sex-disaggregated data on participation in all sectors of science, technology and innovation systems.
- Work with a range of technologies and strategies, scaled at different levels, to address local and national challenges in on-farm productivity improvements; soil and water management; and increase value addition to bioresources by:
  - Building the capacity of women to harness and adopt these technologies.
  - Establishing resource centres in rural areas and disseminating information using **Information and communication technologies**.
  - Promoting partnerships between women scientists and technologists and women in rural areas
  - Promoting collective initiatives through women's organizations, networks and cooperatives.
- Policies and programmes to support gender equality in all levels of science, technology and innovation development and implementation should include ongoing monitoring and evaluation, including sex-disaggregated data and indicators. These approaches can include benchmarking and lessons learned in relation to success stories in other countries and regions.
- Establish an inventory on approaches, successes and lessons learned on strategies and models for action in all of these areas.